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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,275	04/05/2005	Yusuke Mitari	00862.103995.	3631

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EXAMINER
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SAINT CYR, LEONARD

ART UNIT	PAPER NUMBER
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2626

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/530,275	<b>Applicant(s)</b> MITARI ET AL.	
	<b>Examiner</b> LEONARD SAINT CYR	<b>Art Unit</b> 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 3 - 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3 - 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/05/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 14 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. **Claim 14** is directed to a computer readable medium storing processor executable instructions that is not limited to a non transitory tangible, and thus, statutory medium. The scope of "computer-readable medium" as defined in the specification may include signal-based mediums such as "signals used to propagate instructions", " As this storage medium storing the program code, it is possible to use, e.g., a floppy (R) disk, hard disk, optical disk, magneto optical disk, CD-ROM, magnetic tape, nonvolatile memory card, or ROM " (*see Specification, Page 52, lines 5 - 9*). A signal does not fall within one of the four statutory categories of invention (*i.e., process, machine, manufacture, or composition of matter*) because it is an ephemeral, transient signal and thus is non-statutory. Since the scope of "computer-readable medium" may include these non-statutory instances, **claim 14** is directed to non-statutory subject matter. Amending the claim to recite "A non-transitory computer-readable storage medium" may overcome the 101 rejection.

***Response to Arguments***

2. Applicant's arguments with respect to claims 1, and 3 – 18 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue that neither Mori et al., nor Matsugu et al., (775) nor Matsugu et al (537) teach activation step of selectively activating at least one extraction module from among a plurality of extraction modules for extracting features of respective, whose calculated likelihood of the category for the feature of the second layer to be extracted from the input data is not less than a predetermined value; extracting a feature of the second layer from the input data by the selectively activated extraction module (Amendment, pages 7 - 10).

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, and 3 - 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al.(US PAP 2002/0181765) in view of Matsugu (US PAP 2002/0038294).

As per claims 1, 13 and 14 Mori et al. discloses a pattern identification method of identifying a pattern of input data by hierarchically extracting features of the input data, comprising:

using a processor to perform (paragraph 11) the step:

a first feature extraction step of extracting a feature of a first layer from the input data (see para [0056]);

an analysis step of analyzing a distribution of a feature extraction result in the first feature extraction step (see para [0053]);and

a second feature extraction step of extracting a feature of a second layer (see para [0057]).

However, Mori et al., do not specifically teach calculating a respective likelihood of extracting from the input data a feature of one of a plurality of categories for features of a second layer, each feature of the second layer corresponding to a combination of features of a first layer on a basis of an analyzed distribution of in the analysis step; an activation step of selectively activating at least one extraction module from among a plurality of extraction modules for extracting features of respective categories, whose calculated likelihood of the category for the feature of the second layer to be extracted from the input data is not less than a predetermined value; extracting a feature of the second layer from the input data by the selectively activated extraction module; and a storing step of storing the extracted feature of the second layer in a memory.

Matsugu teaches that a typically circular or rectangular region having a size intrinsic to the processing channel centered about **the feature integration layer neuron located at a fixation position is activated and the output of the feature integration layer (2,0) that is associated with the region is propagated to the feature detection layer (1,1)**. The layers described above, the layers ((1,1), . . . ) detect a plurality of different features in each feature detection module, and the latter layers ((2,1), . . . ) integrate the detection results on a plurality of features received from the feature detection layers in the previous stages. The feature detection layers are

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connected or wired so as to receive cell element outputs of the feature integration layers in the previous stages that belong to the same channels. **The feature detection neuron 602 receives pulses associated with a plurality of feature categories from a neuron 601 forming the receptive field 105 in an input layer 101 or a feature integration layer 103, which is the preceding layer...**In step S903, the neuron 602 obtains a weighted sum **based on a predetermined temporal weighting function.** In **step S904, the neuron 602 determines whether a threshold value** has been reached, and if the determination result is affirmative, then the neuron 602 outputs a pulse in step S905 (paragraphs 208, 251, and 381).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to activate at least one extraction module from among a plurality of extraction modules for extracting features of respective categories as taught by Matsugu in Mori et al., because that would help dramatically improve an information processing capability for detecting patterns (paragraph 44).

Claim 14 further teaches a computer readable storage medium ("computer software...recording medium"; Matsugu; paragraphs 4, and 220).

As per claim 3, Mori et al in view of Matsugu further disclose that in the first or second feature extraction step, a feature obtained by performing a predetermined transformation to a predetermined feature is extracted (Mori et al; see para [0057]).

As per claim 4, Mori et al in view of Matsugu further disclose a re-extraction step of re-extracting a feature of a lower layer on the basis of a feature extraction result of a higher layer in the second feature extraction step (Mori et al; see para [0056]- [0058]).

As per claim 5, Mori et al in view of Matsugu further disclose that in the analysis step, a distribution of each of a plurality of feature extraction results is analyzed, and a relative relationship between analytical results is analyzed (Mori et al; see para [0053], [0061]).

As per claim 6, Mori et al in view of Matsugu further disclose that in the analysis step, a distribution within a specific range of at least one of a plurality of feature extraction results is analyzed (Mori et al; see para [0053], [0061]).

As per claim 7, Mori et al in view of Matsugu further disclose that in the analysis step, whether the feature is extracted or not extracted within a predetermined range in a distribution of at least one of a plurality of feature extraction results is analyzed (Mori et al; see para [0053], [0061]).

Regarding claim 8, Mori et al. in view of Matsugu do not specifically teach a barycenter of a distribution of at least one of a plurality of feature extraction results is analyzed. However this feature is well known in the art as indicated by Matsugu.

Matsugu discloses **if an object to be recognized or detected is a face, and the**

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**search into or detection of eyes, which are parts of the face**, is important, and a high priority should be set for the detection of eye patterns in visual search for that purpose, the response selectivity for the feature element patterns making up an eye or the sensitivity for detecting a particular feature can be selectively increased by introducing feedback connection from a high-order feature detection layer (Matsugu; paragraph 191). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a barycenter of a distribution of the features, because this would enable detection to be performed by imparting a higher level of importance to the low-order feature elements making up a high-order feature element or pattern (Matsugu; paragraph 191).

As per claim 9, Mori et al in view of Matsugu further disclose that in the analysis step, a size of a range within which the feature is extracted or not extracted in a distribution of at least one of a plurality of feature extraction results is analyzed (Mori et al; see para [0053], [0061]).

As per claim 10, Mori et al in view of Matsugu further disclose that in the analysis step, a likelihood of at least one of a plurality of feature extraction results or a total of feature detection levels is analyzed (Mori et al; see para [0061]).



As per claim 11, Mori et al in view of Matsugu further disclose that the pattern identification is performed on the presence/absence of a face image contained in the input data (Mori et al; see para [0078] - [0079]).

As per claim 12, Mori et al in view of Matsugu further disclose that the pattern identification is performed on a position of a face image contained in the input data (Mori et al; see para [0079]).

As per claim 15, Mori et al in view of Matsugu further disclose that a second feature extraction step of extracting a feature of a second layer higher than the first layer by one on the basis of a feature extraction result in the first layer and a feature extraction result in a layer other than the first layer (Mori et al; see para [0056]- [0057]).

As per claim 16, Mori et al in view of Matsugu further disclose that the layer other than the first layer is a layer lower than the first layer (Mori et al; see para [0056] - [0057]).

As per claim 17, Mori et al in view of Matsugu further disclose that the layer other than the first layer is the second layer (Mori et al; see para [0056] - [0057]).

As per claim 18, Mori et al in view of Matsugu further disclose that an integrating step of integrating feature extraction results by a plurality of feature extractors in the same layer (Mori et al; see para [0053]).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD SAINT CYR whose telephone number is (571)272-4247. The examiner can normally be reached on Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call (800) 786- 9199 (IN USA OR CANADA) or (571) 272-1000.

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/Leonard Saint-Cyr/

Examiner, Art Unit 2626